

CHAPTER 61  
WATER QUALITY STANDARDS

[Prior to 7/1/83, DEQ Ch 16]  
[Prior to 12/3/86, Water, Air and Waste Management[900]]

WATER QUALITY STANDARDS

**567—61.1** Rescinded, effective August 31, 1977.

**567—61.2(455B) General considerations.**

**61.2(1) Policy statement.** It shall be the policy of the commission to protect and enhance the quality of all the waters of the state. In the furtherance of this policy it will attempt to prevent and abate the pollution of all waters to the fullest extent possible consistent with statutory and technological limitations. This policy shall apply to all point and nonpoint sources of pollution.

These water quality standards establish selected criteria for certain present and future designated uses of the surface waters of the state. The standards establish the areas where these uses are to be protected and provide minimum criteria for waterways having nondesignated uses as well. Many surface waters are designated for more than one use. In these cases the more stringent criteria shall govern for each parameter.

Certain of the criteria are in narrative form without numeric limitations. In applying such narrative standards, decisions will be based on the U.S. Environmental Protection Agency's methodology described in "Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses," (1985) and on the rationale contained in "Quality Criteria for Water," published by the U.S. Environmental Protection Agency (1977), as updated by supplemental Section 304 (of the Act) Ambient Water Quality Criteria documents. To provide human health criteria for parameters not having numerical values listed in 61.3(3) Table 1, the required criteria will be based on the rationale contained in these EPA criteria documents. The human health criterion considered will be the value associated with the consumption of fish flesh and a risk factor of  $10^{-5}$  for carcinogenic parameters. For noncarcinogenic parameters, the recommended EPA criterion will be selected. For Class C water, the EPA criteria for fish and water consumption will be selected using the same considerations for carcinogenic and noncarcinogenic parameters as noted above.

All methods of sample collection, preservation, and analysis used in applying any of the rules in these standards shall be in accord with those prescribed in 567—Chapter 63.

**61.2(2) Antidegradation policy.** It is the policy of the state of Iowa that:

*a.* Existing surface water uses and the level of water quality necessary to protect the existing uses will be maintained and protected.

*b.* Chemical integrity: For those water bodies where water quality significantly exceeds levels necessary to protect existing uses and the waters designated as high quality in 61.3(5) "e," that water quality will be maintained at or above existing quality, except when it is determined by the environmental protection commission after public hearing and after intergovernmental coordination and public participation provisions noted in the continuing planning process that there is need to allow a lower chemical quality because of necessary and justifiable economic and social development in the area. The state shall ensure adequate chemical quality to fully protect existing uses.

- (1) Bear Creek, mouth in Winneshiek County and tributary to the Upper Iowa River.
- (2) Bloody Run, mouth in Clayton County and tributary to the Mississippi River.
- (3) Catfish Creek from Swiss Valley Park in Dubuque County to its source.
- (4) Unnamed Creek known locally as Coldwater Creek with mouth in Winneshiek County and tributary to the Upper Iowa River.
- (5) Fenchel Creek, mouth to Richmond Springs, in Delaware County and tributary to the Maquoketa River.
- (6) Odell Branch (aka Fountain Spring Creek), mouth (section 10, T90N, R4W, Delaware County), tributary to Elk Creek, which is tributary to the Turkey River to west line of section 9, T90N, R4W, Delaware County.

(7) Iowa Great Lakes chain of lakes in Dickinson County, including West Lake Okoboji, Spirit Lake, East Lake Okoboji, Minnewashta Lake, Upper Gar Lake, and Lower Gar Lake.

(8) North Bear Creek, with mouth in Winneshiek County and tributary to Bear Creek, listed as number 1 in this listing.

(9) North Cedar Creek, with mouth in Clayton County and tributary to Sny Magill Creek.

(10) Sny Magill Creek, with mouth in Clayton County and tributary to the Mississippi River.

(11) Turkey River, from the point where it is joined by the Volga River in Clayton County to Vernon Springs in Howard County.

(12) Waterloo Creek, with mouth in Allamakee County and tributary to the Upper Iowa River.

(13) Maquoketa River, from confluence with South Fork Maquoketa River (section 16, T90N, R6W, Delaware County) to Highway 3 (north line of section 24, T91N, R7W, Fayette County).

(14) Spring Branch, mouth (section 10, T88N, R5W, Delaware County) to spring source (section 35, T89N, R5W, Delaware County).

(15) Little Turkey River, Clayton-Delaware County line to south line of section 11, T90N, R3W, Delaware County.

(16) Middle Fork Little Maquoketa River (aka Bankston Creek), west line of section 31, T90N, R1E to north line of section 33, T90N, R1W, Dubuque County.

(17) Brush Creek, north line of section 23, T85N, R3E to north line of section 1, T85N, R3E, Jackson County.

(18) Dalton Lake — Jackson County.

(19) Little Mill Creek, mouth (Jackson County) to west line of section 29, T86N, R4E, Jackson County.

(20) Mill Creek (aka Big Mill Creek), from confluence with Little Mill Creek in section 13, T86N, R4E, Jackson County, to confluence with Unnamed Creek, section 1, T86N, R3E, Jackson County.

(21) Unnamed Creek (tributary to Mill Creek), mouth (section 1, T86N, R3E, Jackson County) to west line of section 1, T86N, R3E, Jackson County.

(22) Unnamed Creek (aka South Fork Big Mill), tributary to Mill Creek, from mouth (section 8, T86N, R4E, Jackson County) to west line of section 17, T86N, R4E, Jackson County.

(23) Clear Creek, mouth (Allamakee County) to west line of section 25, T99N, R4W, Allamakee County.

(24) French Creek, mouth (Allamakee County) to east line of section 23, T99N, R5W, Allamakee County.

(25) Hickory Creek, mouth (Allamakee County) to south line of section 28, T96N, R5W, Allamakee County.

(26) Little Paint Creek, mouth to north line of section 30, T97N, R3W, Allamakee County.

(27) Paint Creek, from confluence with Little Paint Creek to road crossing in section 18, T97N, R4W, Allamakee County.

(28) Patterson Creek, mouth (Allamakee County) to east line of section 3, T98N, R6W, Allamakee County.

(29) Silver Creek, mouth (Allamakee County) to south line of section 31, T99N, R5W, Allamakee County.

(30) Village Creek, mouth (Allamakee County) to west line of section 19, T98N, R4W, Allamakee County.

(31) Wexford Creek, mouth to west line of section 25, T98N, R3W, Allamakee County.

(32) Buck Creek, mouth (Clayton County) to west line of section 9, T93N, R3W, Clayton County.

(33) Ensign Creek (aka Ensign Hollow), mouth (section 28, T92N, R6W, Clayton County) to spring source (section 29, T92N, R6W, Clayton County).

(34) South Cedar Creek (aka Cedar Creek), mouth (Clayton County) to north line of section 7, T92N, R3W, Clayton County.

- (35) Bear Creek, mouth (Fayette County) to west line of section 6, T92N, R7W, Fayette County.
- (36) Unnamed Creek (aka Glover's Creek), mouth to west line of section 15, T94N, R8W, Fayette County.
- (37) Grannis Creek, mouth to west line of section 36, T93N, R8W, Fayette County.
- (38) Mink Creek, mouth to west line of section 15, T93N, R7W, Fayette County.
- (39) Otter Creek, mouth (Fayette County) to confluence with Unnamed Creek (aka Glover's Creek) in section 22, T94N, R8W, Fayette County.
- (40) Nichols Creek (aka Bigalk Creek), mouth (section 18, T100N, R10W, Winneshiek County) to west line of section 23, T100N, R11W, Howard County.
- (41) Spring Creek, mouth (Mitchell County) to north line of section 8, T97N, R16W, Mitchell County.
- (42) Turtle Creek, mouth (Mitchell County) to east line of section 7, T99N, R17W, Mitchell County.
- (43) Wapsipicon River, from the town of McIntire to north line of section 20, T99N, R15W, Mitchell County.
- (44) Bohemian Creek, mouth (Winneshiek County) to Howard County Road V58 (west line of section 2, T97N, R11W, Howard County).
- (45) Coon Creek, mouth (Winneshiek County) to road crossing in section 13, T98N, R7W, Winneshiek County.
- (46) Smith Creek (aka Trout River), mouth to south line of section 33, T98N, R7W, Winneshiek County.
- (47) Unnamed Creek (aka Trout Run), mouth to south line of section 27, T98N, R8W, Winneshiek County.
- (48) Twin Springs Creek, mouth to springs in Twin Springs Park in section 20, T98N, R8W, Winneshiek County.
- (49) Canoe Creek (aka West Canoe Creek), from Winneshiek County Road W38 to west line of section 8, T99N, R8W, Winneshiek County.
- c.* Standards and restrictions more stringent than those applied to other waters may be applied by the commission to those waters listed below when it is determined that such more stringent standards and restrictions are necessary to fully maintain water quality at existing levels.
- West Lake Okoboji in Dickinson County.
- d.* The Mississippi River and the Missouri River do not meet the criteria of 61.2(2) "c" but nevertheless constitute waters of exceptional state and national significance. Water quality management decisions will be made in consideration of the exceptional value of the resource.
- e.* In furtherance of the policy stated in 61.2(2) "b," there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources, and feasible management and regulatory programs pursuant to Section 208 of the Federal Water Pollution Control Act for nonpoint sources, both existing and proposed.
- f.* Physical and biological integrity: The waters designated as high-quality resource waters in 61.3(5) "e" will receive protection of existing uses through maintaining water quality levels necessary to fully protect existing uses or improve water quality to levels necessary to meet the designated use criterion in Tables 1, 2 and 3 and at preserving or enhancing the physical and biological integrity of these waters. This involves the protection of such features of the water body as channel alignment, bed characteristics, water velocity, aquatic habitat, and the type, distribution and abundance of existing aquatic species.
- g.* It is the intent of the antidegradation policy to protect and maintain the existing physical, biological, and chemical integrity of all waters of the state. Consistency with Iowa's water quality standards requires that any proposed activity modifying the existing physical, biological, or chemical integrity of a water of the state shall not adversely impact these resource attributes, either on an individual or cumulative basis. An adverse impact shall refer to the loss of or irreparable damage to the aquatic, semiaquatic or wildlife habitat or population, or a modification to the water body that would cause an overall degradation to the aquatic or wildlife population and diversity. The fish and wildlife division of the department and the U.S. Fish and Wildlife Service shall serve as consultants to the department for assessing impacts. Exceptions to the preceding will be allowed only if full mitigation is provided by the applicant and approved by the department.

For those waters of the state designated as high quality or high quality resource waters and the Mississippi and Missouri Rivers, any proposed activity that will adversely impact the existing physical, chemical, or biological integrity of that water will not be consistent with Iowa's water quality standards. Mitigation will not be allowed except in highly unusual situations where no other project alternatives exist. In these cases, full mitigation must be provided by the applicant and approved by the department.

*h.* This policy shall be applied in conjunction with water quality certification review pursuant to Section 401 of the Act. In the event that activities are specifically exempted from flood plain development permits or any other permits issued by this department in 567—Chapters 70, 71, and 72, the activity will be considered consistent with this policy. Other activities not otherwise exempted will be subject to 567—Chapters 70, 71, and 72 and this policy. The repair and maintenance of a drainage district ditch as defined in 567—70.2(455B,481A) will not be considered a violation of the antidegradation policy for the purpose of implementing Title IV of these rules. United States Army Corps of Engineers (Corps) nationwide permits 3, 4, 5, 6, 7, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 27, 29, 30, 31, 32, 33, 34, 36, 37, 38, 39, 40, 41, 42, 43, and 44 as promulgated March 18, 2002, are certified pursuant to Section 401 of the Clean Water Act subject to the following regional conditions:

(1) Side slopes of a newly constructed channel will be no steeper than 2 horizontal to 1 vertical and planted to permanent, perennial, native vegetation if it is not armored.

(2) Nationwide permits with mitigation may require recording of the permit with the registrar of deeds or other appropriate official charged with the responsibility for maintaining records of title to, or interest in, real property and provide proof of recording to the Corps.

(3) Mitigation shall be scheduled for construction prior to or concurrent with the construction of the main project. Regional permit numbers 2, 7, 12, and 20 of the Rock Island District of the Corps are also certified. No specific Corps permit or 401 certification is required for activities covered by these permits unless required by the nationwide permit or the Corps, and the activities are allowed subject to the terms of the nationwide and regional permits. The department will maintain and periodically update a guidance document listing special waters of concern. This document will be provided to the Corps for use in determining whether preconstruction notices should be provided to the department and other interested parties prior to taking action on applications for projects that would normally be covered by a nationwide or regional permit and not require preconstruction notice under national nationwide permit conditions.

**61.2(3) *Minimum treatment required.*** All wastes discharged to the waters of the state must be of such quality that the discharge will not cause the narrative or numeric criteria limitations to be exceeded. Where the receiving waters provide sufficient assimilative capacity that the water quality standards are not the limiting factor, all point source wastes shall receive treatment in compliance with minimum effluent standards as adopted in rules by the department.

There are numerous parameters of water quality associated with nonpoint source runoff which are of significance to the designated water uses specified in the general and specific designations in 61.3(455B), but which are not delineated. It shall be the intent of these standards that the limits on such nonpoint source related parameters when adopted shall be those that can be achieved by best management practices as defined in the course of the continuing planning process from time to time. Existing water quality and nonpoint source runoff control technology will be evaluated in the course of the Iowa continuing planning process, and best management practices and limitations on specific water quality parameters will be reviewed and revised from time to time to ensure that the designated water uses and water quality enhancement goals are met.

**61.2(4) Regulatory mixing zones.** Mixing zones are recognized as being necessary for the initial assimilation of point source discharges which have received the required degree of treatment or control. Mixing zones shall not be used for, or considered as, a substitute for minimum treatment technology required by subrule 61.2(3). The objective of establishing mixing zones is to provide a means of control over the placement and emission of point source discharges so as to minimize environmental impacts. Waters within a mixing zone shall meet the general water quality criteria of subrule 61.3(2). Waters at and beyond mixing zone boundaries shall meet all applicable standards and the chronic and human health criteria of subrule 61.3(3), Tables 1 and 3, for that particular water body or segment. A zone of initial dilution may be established within the mixing zone beyond which the applicable standards and the acute criteria of subrule 61.3(3) will be met. For waters designated under subrule 61.3(5), any parameter not included in Tables 1, 2 and 3 of subrule 61.3(3), the chronic and human health criteria, and the acute criterion calculated following subrule 61.2(1), will be met at the mixing zone and zone of initial dilution boundaries, respectively.

*a.* Due to extreme variations in wastewater and receiving water characteristics, spatial dimensions of mixing zones shall be defined on a site-specific basis. These rules are not intended to define each individual mixing zone, but will set maximum limits which will satisfy most biological, chemical, physical and radiological considerations in defining a particular mixing zone. Additional details are noted in the "Supporting Document for Iowa Water Quality Management Plans," Chapter IV, July 1976, as revised on June 16, 2004, for considering unusual site-specific features such as side channels and sand bars which may influence a mixing zone. Applications for operation permits under 567—subrule 64.3(1) may be required to provide specific information related to the mixing zone characteristics below their outfall so that mixing zone boundaries can be determined.

*b.* For parameters included in Table 1 only (which does not include ammonia nitrogen), the dimensions of the mixing zone and the zone of initial dilution will be calculated using a mathematical model presented in the "Supporting Document for Iowa Water Quality Management Plans," Chapter IV, July 1976, as revised on June 16, 2004, or from instream studies of the mixing characteristics during low flow. In addition, the most restrictive of the following factors will be met:

- (1) The stream flow in the mixing zone may not exceed the most restrictive of the following:
  1. Twenty-five percent of the design low stream flows noted in subrule 61.2(5) for interior streams and rivers, and the Big Sioux and Des Moines Rivers.
  2. Ten percent of the design low stream flows noted in subrule 61.2(5) for the Mississippi and Missouri Rivers.
  3. The stream flow contained in the mixing zone at the most restrictive of the applicable mixing zone length criteria, noted below.
- (2) The length of the mixing zone below the point of discharge shall be set by the most restrictive of the following:
  1. The distance to the juncture of two perennial streams.
  2. The distance to a public water supply intake.
  3. The distance to the upstream limits of an established recreational area, such as public beaches, and state, county and local parks.
  4. The distance to the middle of a crossover point in a stream where the main current flows from one bank across to the opposite bank.
  5. The distance to another mixing zone.
  6. Not to exceed a distance of 2000 feet.
  7. The location where the mixing zone contained the percentages of stream flow noted in 61.2(4)"b"(1).
- (3) The width of the mixing zone is calculated as the portion of the stream containing the allowed mixing zone stream flow. The mixing zone width will be measured perpendicular to the basic direction of stream flow at the downstream boundary of the mixing zone. This measurement will only consider the distance of continuous water surface.
- (4) The width and length of the zone of initial dilution may not exceed 10 percent of the width and length of the mixing zone.

c. The stream flow used in determining wasteload allocations to ensure compliance with the maximum contaminant level (MCL), chronic and human health criteria of Table 1 will be that value contained at the boundary of the allowed mixing zone. This stream flow may not exceed the following percentages of the design low stream flow as measured at the point of discharge:

- (1) Twenty-five percent for interior streams and rivers, and the Big Sioux and Des Moines Rivers.
- (2) Ten percent for the Mississippi and Missouri Rivers.

The stream flow in the zone of initial dilution used in determining effluent limits to ensure compliance with the acute criteria of Table 1 may not exceed 10 percent of the calculated flow associated with the mixing zone.

d. For toxic parameters noted in Table 1, the following exceptions apply to the mixing zone requirements:

(1) No mixing zone or zone of initial dilution will be allowed for waters designated as lakes or wetlands.

(2) No zone of initial dilution will be allowed in waters designated as cold water.

(3) The use of a diffuser device to promote rapid mixing of an effluent in a receiving stream will be considered on a case-by-case basis with its usage as a means for dischargers to comply with an acute numerical criterion.

(4) A discharger to interior streams and rivers, the Big Sioux and Des Moines Rivers, and the Mississippi or Missouri Rivers may provide to the department, for consideration, instream data which technically supports the allowance of an increased percentage of the stream flow contained in the mixing zone due to rapid and complete mixing. Any allowed increase in mixing zone flow would still be governed by the mixing zone length restrictions. The submission of data should follow the guidance provided in the "Supporting Document for Iowa Water Quality Management Plans," Chapter IV, July 1976, as revised on June 16, 2004.

e. For ammonia criteria noted in Table 3, the dimensions of the mixing zone and the zone of initial dilution will be calculated using a mathematical model presented in the "Supporting Document for Iowa Water Quality Management Plans," Chapter IV, July 1976, as revised on June 16, 2004, or from instream studies of the mixing characteristics during low flow. In addition, the most restrictive of the following factors will be met:

(1) The stream flow in the mixing zone may not exceed the most restrictive of the following:

1. One hundred percent of the design low stream flows noted in subrule 61.2(5) for locations where the dilution ratio is less than or equal to 2:1.

2. Fifty percent of the design low stream flows noted in subrule 61.2(5) for locations where the dilution ratio is greater than 2:1, but less than or equal to 5:1.

3. Twenty-five percent of the design low stream flows noted in subrule 61.2(5) for locations where the dilution ratio is greater than 5:1.

4. The stream flow contained in the mixing zone at the most restrictive of the applicable mixing zone length criteria, noted below.

(2) The length of the mixing zone below the point of discharge shall be set by the most restrictive of the following:

1. The distance to the juncture of two perennial streams.

2. The distance to a public water supply intake.

3. The distance to the upstream limits of an established recreational area, such as public beaches, and state, county, and local parks.

4. The distance to the middle of a crossover point in a stream where the main current flows from one bank across to the opposite bank.

5. The distance to another mixing zone.

6. Not to exceed a distance of 2000 feet.

7. The location where the mixing zone contained the percentages of stream flow noted in 61.2(4)"e"(1).

(3) The width of the mixing zone is calculated as the portion of the stream containing the allowed mixing zone stream flow. The mixing zone width will be measured perpendicular to the basic direction of stream flow at the downstream boundary of the mixing zone. This measurement will only consider the distance of continuous water surface.

(4) The width and length of the zone of initial dilution may not exceed 10 percent of the width and length of the mixing zone.

*f.* For ammonia criteria noted in Table 3, the stream flow used in determining wasteload allocations to ensure compliance with the chronic criteria of Table 3 will be that value contained at the boundary of the allowed mixing zone. This stream flow may not exceed the percentages of the design low stream flow noted in 61.2(4)“*e*”(1) as measured at the point of discharge.

The pH and temperature values at the boundary of the mixing zone used to select the chronic ammonia criteria of Table 3 will be from one of the following sources. The source of the pH and temperature data will follow the sequence listed below, if applicable data exists from the source.

(1) Specific pH and temperature data provided by the applicant gathered at their mixing zone boundary. Procedures for obtaining this data are noted in the “Supporting Document for Iowa Water Quality Management Plans,” Chapter IV, July 1976, as revised on June 16, 2004.

(2) Regional background pH and temperature data provided by the applicant gathered along the receiving stream and representative of the background conditions at the outfall. Procedures for obtaining this data are noted in the “Supporting Document for Iowa Water Quality Management Plans,” Chapter IV, July 1976, as revised on June 16, 2004.

(3) The statewide average background values presented in Table IV-2 of the “Supporting Document for Iowa Water Quality Management Plans,” Chapter IV, July 1976, as revised on June 16, 2004.

The stream flow in the zone of initial dilution used in determining effluent limits to ensure compliance with the acute criteria of Table 3 may not exceed 5 percent of the calculated flow associated with the mixing zone for facilities with a dilution ratio of less than or equal to 2:1, and not exceed 10 percent of the calculated flow associated with the mixing zone for facilities with a dilution ratio of greater than 2:1. The pH and temperature values at the boundary of the zone of initial dilution used to select the acute ammonia criteria of Table 3 will be from one of the following sources and follow the sequence listed below, if applicable data exists from the source.

1. Specific effluent pH and temperature data if the dilution ratio is less than or equal to 2:1.

2. If the dilution ratio is greater than 2:1, the logarithmic average pH of the effluent and the regional or statewide pH provided in 61.2(4)“*f*” will be used. In addition, the flow proportioned average temperature of the effluent and the regional or statewide temperature provided in 61.2(4)“*f*” will be used. The procedures for calculating these data are noted in the “Supporting Document for Iowa Water Quality Management Plans,” Chapter IV, July 1976, as revised on June 16, 2004.

*g.* For ammonia criteria noted in Table 3, the following exceptions apply to the mixing zone requirements.

(1) No mixing zone or zone of initial dilution will be allowed for waters designated as lakes or wetlands.

(2) No zone of initial dilution will be allowed in waters designated as cold water.

(3) The use of a diffuser device to promote rapid mixing of an effluent in a receiving stream will be considered on a case-by-case basis with its usage as a means for dischargers to comply with an acute numerical criterion.

(4) A discharger to interior streams and rivers, the Big Sioux and Des Moines Rivers, and the Mississippi and Missouri Rivers may provide to the department, for consideration, instream data which technically supports the allowance of an increased percentage of the stream flow contained in the mixing zone due to rapid and complete mixing. Any allowed increase in mixing zone flow would still be governed by the mixing zone length restrictions. The submission of data should follow the guidance provided in the “Supporting Document for Iowa Water Quality Management Plans,” Chapter IV, July 1976, as revised on June 16, 2004.

*h.* Temperature changes within mixing zones established for heat dissipation will not exceed the temperature criteria in 61.3(3)"b"(5).

*i.* The appropriateness of establishing a mixing zone where a substance discharged is bioaccumulative, persistent, carcinogenic, mutagenic, or teratogenic will be carefully evaluated. In such cases, effects such as potential groundwater contamination, sediment deposition, fish attraction, bioaccumulation in aquatic life, bioconcentration in the food chain, and known or predicted safe exposure levels shall be considered.

**61.2(5) Implementation strategy.** Numerical criteria specified in these water quality standards shall be met when the flow of the receiving stream equals or exceeds the design low flows noted below.

Type of Numerical Criteria	Design Low Flow Regime
Aquatic Life Protection (TOXICS)	
Acute	1Q <sub>10</sub>
Chronic	7Q <sub>10</sub>
Aquatic Life Protection (AMMONIA - N)	
Acute	1Q <sub>10</sub>
Chronic	30Q <sub>10</sub>
Human Health Protection & MCL	
Noncarcinogenic	30Q <sub>5</sub>
Carcinogenic	Harmonic mean

Exceptions may be made for intermittent or low flow streams classified as significant resource warm waters or limited resource warm waters. For these waters, the department may waive the design low flow requirement and establish a minimum flow in lieu thereof. Such waiver shall be granted only when it has been determined that the aquatic resources of the receiving waters are of no significance at flows less than the established minimum, and that the continued maintenance of the beneficial uses of the receiving waters will be ensured. In no event will toxic conditions be allowed to occur in the receiving waters outside of mixing zones established pursuant to subrule 61.2(4). The policy for granting waivers is described in the "Supporting Document for Iowa Water Quality Management Plans," Chapter IV, July 1976, as revised on June 16, 2004. (Copies are available upon request to the Department of Natural Resources, Henry A. Wallace Building, 900 East Grand, Des Moines, Iowa 50319-0034. Copy also on file with the Iowa Administrative Rules Coordinator.)

All minimum flows established under the provisions of this rule will be published by the department. The minimum flows, commonly termed protected flows, are presented in "Iowa Water Quality Standards: Protected Flows For Selected Stream Segments," dated May 19, 2004. A copy of this document is available upon request from the department. A copy is also on file with the Iowa Administrative Rules Coordinator.

*a.* The allowable 3°C temperature increase criterion for warm water interior streams, 61.3(3)"b"(5)"1," is based in part on the need to protect fish from cold shock due to rapid cessation of heat source and resultant return of the receiving stream temperature to natural background temperature. On low flow streams, in winter, during certain conditions of relatively cold background stream temperature and relatively warm ambient air and groundwater temperature, certain wastewater treatment plants with relatively constant flow and constant temperature discharges will cause temperature increases in the receiving stream greater than allowed in 61.3(3)"b"(5)"1."

*b.* During the period November 1 to March 31, for the purpose of applying the 3°C temperature increase criterion, the minimum protected receiving stream flow rate below such discharges may be increased to not more than three times the rate of flow of the discharge, where there is reasonable assurance that the discharge is of such constant temperature and flow rate and continuous duration as to not constitute a threat of heat cessation and not cause the receiving stream temperature to vary more than 3°C per day.

c. Site-specific water quality criteria may be allowed in lieu of the specific numerical criteria listed in Tables 1 and 3 of this chapter if adequate documentation is provided to show that the proposed criteria will protect all existing or potential uses of the surface water. Site-specific water quality criteria may be appropriate where:

- (1) The types of organisms differ significantly from those used in setting the statewide criteria; or
- (2) The chemical characteristics of the surface water such as pH, temperature, and hardness differ significantly from the characteristics used in setting the statewide criteria.

Development of site-specific criteria shall include an evaluation of the chemical and biological characteristics of the water resource and an evaluation of the impact of the discharge. All evaluations for site-specific criteria modification must be coordinated through the department, and be conducted using scientifically accepted procedures approved by the department. Any site-specific criterion developed under the provisions of this subrule is subject to the review and approval of the U.S. Environmental Protection Agency. All criteria approved under the provisions of this subrule will be published periodically by the department. Guidelines for establishing site-specific water quality criteria can be found in "Water Quality Standards Handbook," published by the U.S. Environmental Protection Agency, December 1983.

d. A wastewater treatment facility may submit to the department technically valid instream data which provides additional information to be used in the calculations of their wasteload allocations and effluent limitations. This information would be in association with the low flow characteristics, width, length and time of travel associated with the mixing zone or decay rates of various effluent parameters. The wasteload allocation will be calculated considering the applicable data and consistent with the provisions and restrictions in the rules.

### **567—61.3(455B) Surface water quality criteria.**

**61.3(1) Surface water classification.** All waters of the state are classified for protection of beneficial uses. These classified waters include general use segments and designated use segments.

a. *General use segments.* These are intermittent watercourses and those watercourses which typically flow only for short periods of time following precipitation in the immediate locality or as a result of discharges from wastewater treatment facilities, and whose channels are normally above the water table. These waters do not support a viable aquatic community of significance during low flow, and do not maintain pooled conditions during periods of no flow.

However, during periods when sufficient flow exists in the intermittent watercourses to support various uses, the general use segments are to be protected for livestock and wildlife watering, noncontact recreation, crop irrigation, and industrial, agricultural, domestic and other incidental water withdrawal uses. The aquatic life existing within these watercourses during elevated flows will be protected from acutely toxic conditions.

b. *Designated use segments.* These are water bodies which maintain flow throughout the year, or contain sufficient pooled areas during intermittent flow periods to maintain a viable aquatic community of significance.

Designated use waters are to be protected for all uses of general use segments in addition to the specific uses assigned. Designated use segments include:

(1) Primary contact recreational use (Class "A1"). Waters in which recreational or other uses may result in prolonged and direct contact with the water, involving considerable risk of ingesting water in quantities sufficient to pose a health hazard. Such activities would include, but not be limited to, swimming, diving, water skiing, and water contact recreational canoeing.

(2) Secondary contact recreational use (Class "A2"). Waters in which recreational or other uses may result in contact with the water that is either incidental or accidental. During the recreational use, the probability of ingesting appreciable quantities of water is minimal. Class A2 uses include fishing, commercial and recreational boating, any limited contact incidental to shoreline activities and activities in which users do not swim or float in the water body while on a boating activity.

(3) Children's recreational use (Class "A3"). Waters in which recreational uses by children are common. Class A3 waters are water bodies having definite banks and bed with visible evidence of the flow or occurrence of water. This type of use would primarily occur in urban or residential areas.

(4) Cold water aquatic life—Type 1 (Class “B(CW1)”). Waters in which the temperature and flow are suitable for the maintenance of a variety of cold water species, including reproducing and nonreproducing populations of trout (*Salmonidae* family) and associated aquatic communities.

(5) Cold water aquatic life—Type 2 (Class “B(CW2)”). Waters that include small, channeled streams, headwaters, and spring runs that possess natural cold water attributes of temperature and flow. These waters usually do not support consistent populations of trout (*Salmonidae* family), but may support associated vertebrate and invertebrate organisms.

(6) High quality water (Class “HQ”). Waters with exceptionally better quality than the levels specified in Tables 1, 2 and 3 and with exceptional recreational and ecological importance. Special protection is warranted to maintain the unusual, unique or outstanding physical, chemical, or biological characteristics which these waters possess.

(7) High quality resource water (Class “HQR”). Waters of substantial recreational or ecological significance which possess unusual, outstanding or unique physical, chemical, or biological characteristics which enhance the beneficial uses and warrant special protection.

(8) Significant resource warm water (Class “B(WW)”). Waters in which temperature, flow and other habitat characteristics are suitable for the maintenance of a wide variety of reproducing populations of warm water fish and associated aquatic communities, including sensitive species.

(9) Limited resource warm water (Class “B(LR)”). Waters in which flow or other physical characteristics limit the ability of the water body to maintain a balanced warm water community. Such waters support only populations composed of species able to survive and reproduce in a wide range of physical and chemical conditions, and are not generally harvested for human consumption.

(10) Lakes and wetlands (Class “B(LW)”). These are artificial and natural impoundments with hydraulic retention times and other physical and chemical characteristics suitable to maintain a balanced community normally associated with lake-like conditions.

(11) Drinking water supply (Class “C”). Waters which are used as a raw water source of potable water supply.

**61.3(2) General water quality criteria.** The following criteria are applicable to all surface waters including general use and designated use waters, at all places and at all times to protect livestock and wildlife watering, aquatic life, noncontact recreation, crop irrigation, and industrial, domestic, agricultural and other incidental water withdrawal uses not protected by the specific numerical criteria of subrule 61.3(3).

a. Such waters shall be free from substances attributable to point source wastewater discharges that will settle to form sludge deposits.

b. Such waters shall be free from floating debris, oil, grease, scum and other floating materials attributable to wastewater discharges or agricultural practices in amounts sufficient to create a nuisance.

c. Such waters shall be free from materials attributable to wastewater discharges or agricultural practices producing objectionable color, odor or other aesthetically objectionable conditions.

d. Such waters shall be free from substances attributable to wastewater discharges or agricultural practices in concentrations or combinations which are acutely toxic to human, animal, or plant life.

e. Such waters shall be free from substances, attributable to wastewater discharges or agricultural practices, in quantities which would produce undesirable or nuisance aquatic life.

f. The turbidity of the receiving water shall not be increased by more than 25 Nephelometric turbidity units by any point source discharge.

g. Acceptable levels of total dissolved solids (TDS) and constituent cations and anions will be established on a site-specific basis. The implementation approach for establishing the site-specific levels may be found in the “Supporting Document for Iowa Water Quality Management Plans,” Chapter IV, July 1976, as revised on June 16, 2004.

h. The *Escherichia coli* (*E. coli*) content of water which enters a sinkhole or losing stream segment, regardless of the water body’s designated use, shall not exceed a Geometric Mean value of 126 organisms/100 ml or a sample maximum value of 235 organisms/100 ml. No new wastewater discharges will be allowed on watercourses which directly or indirectly enter sinkholes or losing stream segments.

**61.3(3) Specific water quality criteria.**

a. *Class "A" waters.* Waters which are designated as Class "A1," "A2," or "A3" in subrule 61.3(5) are to be protected for primary contact, secondary contact, and children's recreational uses. The general criteria of subrule 61.3(2) and the following specific criteria apply to all Class "A" waters.

(1) The *Escherichia coli* (E. coli) content shall not exceed the levels noted in the Bacteria Criteria Table when the Class "A1," "A2," or "A3" uses can reasonably be expected to occur.

Bacteria Criteria Table (organisms/100 ml of water)

Use	Geometric Mean	Sample Maximum
Class A1		
3/15 – 11/15	126	235
11/16 – 3/14	Does not apply	Does not apply
Class A2 (Only)		
3/15 – 11/15	630	2880
11/16 – 3/14	Does not apply	Does not apply
Class A2 and B(CW) or HQ		
Year-Round	630	2880
Class A3		
3/15 - 11/15	126	235
11/16 - 3/14	Does not apply	Does not apply

Class A1 - Primary Contact Recreational Use, Class A2 - Secondary Contact Recreational Use, Class A3 - Children's Recreational Use

When a water body is designated for more than one of the recreational uses, the most stringent criteria for the appropriate season shall apply.

(2) The pH shall not be less than 6.5 nor greater than 9.0. The maximum change permitted as a result of a waste discharge shall not exceed 0.5 pH units.

b. *Class "B" waters.* All waters which are designated as Class B(CW1), B(CW2), B(WW), B(LR), or B(LW) are to be protected for wildlife, fish, aquatic and semiaquatic life. The following criteria shall apply to all Class "B" waters designated in subrule 61.3(5).

(1) Dissolved oxygen. Dissolved oxygen shall not be less than the values shown in Table 2 of this subrule.

(2) pH. The pH shall not be less than 6.5 nor greater than 9.0. The maximum change permitted as a result of a waste discharge shall not exceed 0.5 pH units.

(3) General chemical constituents. The specific numerical criteria shown in Tables 1, 2, and 3 of this subrule apply to all waters designated in subrule 61.3(5). The sole determinant of compliance with these criteria will be established by the department on a case-by-case basis. Effluent monitoring or instream monitoring, or both, will be the required approach to determine compliance.

1. The acute criteria represent the level of protection necessary to prevent acute toxicity to aquatic life. Instream concentrations above the acute criteria will be allowed only within the boundaries of the zone of initial dilution.

2. The chronic criteria represent the level of protection necessary to prevent chronic toxicity to aquatic life. Excursions above the chronic criteria will be allowed only inside of mixing zones or only for short-term periods outside of mixing zones; however, these excursions cannot exceed the acute criteria shown in Tables 1 and 3. The chronic criteria will be met as short-term average conditions at all times the flow equals or exceeds either the design flows noted in subrule 61.2(5) or any site-specific low flow established under the provisions of subrule 61.2(5).

3. The human health criteria represent the level of protection necessary, in the case of noncarcinogens, to prevent adverse health effects in humans, and in the case of carcinogens, to prevent a level of incremental cancer risk not exceeding 1 in 100,000. Instream concentrations in excess of the human health criteria will be allowed only within the boundaries of the mixing zone.

(4) The waters shall contain no substances in concentrations which will make fish or shellfish inedible due to undesirable tastes or cause a hazard to humans after consumption.

(5) Temperature.

1. No heat shall be added to interior streams or the Big Sioux River that would cause an increase of more than 3°C. The rate of temperature change shall not exceed 1°C per hour. In no case shall heat be added in excess of that amount that would raise the stream temperature above 32°C.

2. No heat shall be added to streams designated as cold water fisheries that would cause an increase of more than 2°C. The rate of temperature change shall not exceed 1°C per hour. In no case shall heat be added in excess of that amount that would raise the stream temperature above 20°C.

3. No heat shall be added to lakes and reservoirs that would cause an increase of more than 2°C. The rate of temperature change shall not exceed 1°C per hour. In no case shall heat be added in excess of that amount that would raise the temperature of the lake or reservoirs above 32°C.

4. No heat shall be added to the Missouri River that would cause an increase of more than 3°C. The rate of temperature change shall not exceed 1°C per hour. In no case shall heat be added that would raise the stream temperature above 32°C.

5. No heat shall be added to the Mississippi River that would cause an increase of more than 3°C. The rate of temperature change shall not exceed 1°C per hour. In addition, the water temperature at representative locations in the Mississippi River shall not exceed the maximum limits in the table below during more than 1 percent of the hours in the 12-month period ending with any month. Moreover, at no time shall the water temperature at such locations exceed the maximum limits in the table below by more than 2°C.

Zone II—Iowa-Minnesota state line to the northern Illinois border (Mile Point 1534.6).

Zone III—Northern Illinois border (Mile Point 1534.6) to Iowa-Missouri state line.

Month	Zone II	Zone III
January	4°C	7°C
February	4°C	7°C
March	12°C	14°C
April	18°C	20°C
May	24°C	26°C
June	29°C	29°C
July	29°C	30°C
August	29°C	30°C
September	28°C	29°C
October	23°C	24°C
November	14°C	18°C
December	9°C	11°C

(6) Early life stage for each use designation. The following seasons will be used in applying the early life stage present chronic criteria noted in Table 3b, "Chronic Criterion for Ammonia in Iowa Streams - Early Life Stages Present."

1. For all Class B(CW1) waters, the early life stage will be year-round.

2. For all Class B(CW2) waters, the early life stage will begin on April 1 and last through September 30.

3. For all Class B(WW) significant resource waters, the early life stage will begin in March and last through September except the following:

- For the following, the early life stage will begin in February and last through September:

- The entire length of the Mississippi and Missouri Rivers,
- The lower reach of the Des Moines River south of the Ottumwa dam, and
- The lower reach of the Iowa River below the Cedar River.

- For the following, the early life stage will begin in April and last through September:

- All Class B(WW) waters in the Southern Iowa River Basin,
- All of the Class B(WW) reach of the Skunk River, the North Skunk River and the South Skunk River south of Indian Creek (Jasper County), and the Class B(WW) tributaries to these reaches, and
- The entire Class B(WW) reach of the English River.

4. For all Class B(LR) waters, the early life stage will begin in April and last through September.

5. For all Class B(LW) lake and wetland waters, the early life stage will begin in March and last through September except for the Class B(LW) waters in the southern two tiers of Iowa counties which will have the early life stage of April through September.

c. *Class "C" waters.* Waters which are designated as Class "C" are to be protected as a raw water source of potable water supply. The following criteria shall apply to all Class "C" waters designated in subrule 61.3(5).

(1) Radioactive substances.

1. The combined radium-226 and radium-228 shall not exceed 5 picocuries per liter at the point of withdrawal.

2. Gross alpha particle activity (including radium-226 but excluding radon and uranium) shall not exceed 15 picocuries per liter at the point of withdrawal.

3. The average annual concentration at the point of withdrawal of beta particle and photon radioactivity from man-made radionuclides other than tritium and strontium-90 shall not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem/year.

4. The average annual concentration of tritium shall not exceed 20,000 picocuries per liter at the point of withdrawal; the average annual concentration of strontium-90 shall not exceed 8 picocuries per liter at the point of withdrawal.

(2) All substances toxic or detrimental to humans or detrimental to treatment process shall be limited to nontoxic or nondetrimental concentrations in the surface water.

(3) The pH shall not be less than 6.5 nor greater than 9.0.

**TABLE 1. Criteria for Chemical Constituents***(all values as micrograms per liter unless noted otherwise)*

Human health criteria for carcinogenic parameters noted below were based on the prevention of an incremental cancer risk of 1 in 100,000. For parameters not having a noted human health criterion, the U.S. Environmental Protection Agency has not developed final national human health guideline values. For noncarcinogenic parameters, the recommended EPA criterion was selected. For Class C waters, the EPA criteria for fish and water consumption were selected using the same considerations for carcinogenic and noncarcinogenic parameters as noted above. For Class C waters for which no EPA human health criteria were available, the EPA MCL value was selected.

Parameter		Use Designations					C
		B(CW1)	B(CW2)	B(WW)	B(LR)	B(LW)	
Alachlor	MCL	—	—	—	—	—	2
Aluminum	Chronic	87	—	388	773	748	—
	Acute	1106	—	4539	9035	983	—
Antimony	Human Health + — F & W	—	—	—	—	—	14
Arsenic (III)	Chronic	200	—	200	1000	200	—
	Acute	360	—	360	1800	360	—
	Human Health — Fish	50	—	50	—	50	—
	Human Health — F & W	—	—	—	—	—	.18
Asbestos	Human Health — F & W	—	—	—	—	—	7 <sup>(a)</sup>
Atrazine	MCL	—	—	—	—	—	3
Barium	Human Health + — F & W	—	—	—	—	—	1000
Benzene	Human Health — F & W	—	—	—	—	—	12
	Human Health — Fish	712.8	—	712.8	—	712.8	—
Benzo(a)Pyrene	Human Health — F & W	—	—	—	—	—	.044
Beryllium	MCL	—	—	—	—	—	4
Bromoform	Human Health — F & W	—	—	—	—	—	43
	Human Health — Fish	3600	—	3600	—	3600	—
Cadmium	Chronic	1	—	15	25	1	—
	Acute	4	—	75	100	4	—
	Human Health + — Fish	168	—	168	—	168	—
	MCL	—	—	—	—	—	5
Carbofuran	MCL	—	—	—	—	—	40

Parameter		Use Designations					C
		B(CW1)	B(CW2)	B(WW)	B(LR)	B(LW)	
Carbon Tetrachloride	Human Health — F & W	—	—	—	—	—	2.5
	Human Health — Fish	44.2	—	44.2	—	44.2	—
Chlordane	Chronic	.004	—	.004	.15	.004	—
	Acute	2.5	—	2.5	2.5	2.5	—
	Human Health — Fish	.006	—	.006	—	.006	—
	Human Health — F & W	—	—	—	—	—	.021
Chloride	MCL	—	—	—	—	—	250*
Chlorobenzene	Human Health + — Fish	21*	—	21*	—	21*	—
	MCL	—	—	—	—	—	100
Chlorodibromomethane	Human Health — F & W	—	—	—	—	—	4.1
	Human Health — Fish	340	—	340	—	340	—
Chloroform	Human Health — F & W	—	—	—	—	—	57
	Human Health — Fish	4700	—	4700	—	4700	—
Chloropyrifos	Chronic	.041	—	.041	.041	.041	—
	Acute	.083	—	.083	.083	.083	—
Chromium (VI)	Chronic	40	—	40	200	10	—
	Acute	60	—	60	300	15	—
	Human Health + — Fish	3365	—	3365	—	3365	—
	MCL	—	—	—	—	—	100
Copper	Chronic	20	—	35	55	10	—
	Acute	30	—	60	90	20	—
	Human Health + — Fish	1000	—	1000	—	1000	—
	Human Health + — F & W	—	—	—	—	—	1300
Cyanide	Chronic	5	—	10	10	10	—
	Acute	20	—	45	45	45	—
	Human Health + — F & W	—	—	—	—	—	700
Dalapon	MCL	—	—	—	—	—	200
Dibromochloropropane	MCL	—	—	—	—	—	.2
4,4-DDT ++	Chronic	.001	—	.001	.029	.001	—
	Acute	.9	—	.8	.95	.55	—
	Human Health — Fish	.0059	—	.0059	—	.0059	—
	Human Health — F & W	—	—	—	—	—	.0059

Parameter		Use Designations					C
		B(CW1)	B(CW2)	B(WW)	B(LR)	B(LW)	
o-Dichlorobenzene	MCL	—	—	—	—	—	600
para-Dichlorobenzene	Human Health + — F & W	—	—	—	—	—	400
	Human Health + — Fish	2.6*	—	2.6*	—	2.6*	—
3,3-Dichlorobenzidine	Human Health — Fish	.2	—	.2	—	.2	—
	Human Health — F & W	—	—	—	—	—	.4
Dichlorobromomethane	Human Health — F & W	—	—	—	—	—	5.6
	Human Health — Fish	460	—	460	—	460	—
1,2-Dichloroethane	Human Health — F & W	—	—	—	—	—	3.8
	Human Health — Fish	986	—	986	—	986	—
1,1-Dichloroethylene	Human Health — F & W	—	—	—	—	—	.57
	Human Health — Fish	32	—	32	—	32	—
cis-1,2-Dichloroethylene	MCL	—	—	—	—	—	70
trans-1,2-Dichloroethylene	Human Health + — F & W	—	—	—	—	—	700
Dichloromethane	MCL	—	—	—	—	—	5
1,2-Dichloropropane	Human Health — F & W	—	—	—	—	—	5.2
Di(2-ethylhexyl)adipate	MCL	—	—	—	—	—	400
Di(2-ethylhexyl)phthalate	Human Health — F & W	—	—	—	—	—	18
Dieldrin	Chronic	.056	—	.056	.056	.056	—
	Acute	.24	—	.24	.24	.24	—
	Human Health — Fish	.0014	—	.0014	—	.0014	—
	Human Health — F & W	—	—	—	—	—	.0014
Dinoseb	MCL	—	—	—	—	—	7
2,3,7,8-TCDD (Dioxin)	Human Health — F & W	—	—	—	—	—	1.3 <sup>-7</sup>
	Human Health — Fish	.00014†	—	.00014†	—	.00014†	—
Diquat	MCL	—	—	—	—	—	20
2,4-D	Human Health + — F & W	—	—	—	—	—	100

Parameter		Use Designations					
		B(CW1)	B(CW2)	B(WW)	B(LR)	B(LW)	C
Endosulfan <sup>(b)</sup>	Chronic	.056	—	.15	.15	.15	—
	Acute	.11	—	.3	.3	.3	—
	Human Health + — Fish	240	—	240	—	240	—
	Human Health + — F & W	—	—	—	—	—	110
Endothall	MCL	—	—	—	—	—	100
Endrin	Chronic	.05	—	.036	.036	.036	—
	Acute	.12	—	.086	.086	.086	—
	Human Health + — Fish	.81	—	.81	—	.81	—
	Human Health + — F & W	—	—	—	—	—	.76
Ethylbenzene	Human Health + — F & W	—	—	—	—	—	3100
Ethylene dibromide	MCL	—	—	—	—	—	.05
Fluoride	MCL	—	—	—	—	—	4000
Glyphosate	MCL	—	—	—	—	—	700
Heptachlor	Chronic	.0038	—	.0038	.01	.0038	—
	Acute	.38	—	.38	.38	.38	—
	Human Health — Fish	.002	—	.002	—	.002	—
	Human Health — F & W	—	—	—	—	—	.0021
Heptachlor epoxide	Human Health — F & W	—	—	—	—	—	.001
Hexachlorobenzene	Human Health — F & W	—	—	—	—	—	.0075
γ-Hexachlorocyclohexane (Lindane)	Chronic	N/A	—	N/A	N/A	N/A	—
	Acute	.95	—	.95	.95	.95	—
	Human Health — Fish	.63	—	.63	—	.63	—
	Human Health — F & W	—	—	—	—	—	.19
Hexachlorocyclopentadiene	Human Health — F & W	—	—	—	—	—	240
Lead	Chronic	3	—	30	80	3	—
	Acute	80	—	200	750	80	—
	MCL	—	—	—	—	—	50
Mercury (II)	Chronic	3.5	—	2.1	3.7	.91	—
	Acute	6.5	—	4.0	6.9	1.7	—
	Human Health + — Fish	.15	—	.15	—	.15	—
	Human Health + — F & W	—	—	—	—	—	.05

Parameter		Use Designations					C
		B(CW1)	B(CW2)	B(WW)	B(LR)	B(LW)	
Methoxychlor	Human health + — F & W	—	—	—	—	—	100
Nickel	Chronic	350	—	650	750	150	—
	Acute	3250	—	5800	7000	1400	—
	Human Health + — Fish	4584	—	4584	—	4584	—
	Human Health + — F & W	—	—	—	—	—	610
Nitrate as N	MCL	—	—	—	—	—	10*
Nitrate + Nitrite as N	MCL	—	—	—	—	—	10*
Nitrite as N	MCL	—	—	—	—	—	1*
Oxamyl (Vydate)	MCL	—	—	—	—	—	200
Parathion	Chronic	.013	—	.013	.013	.013	—
	Acute	.065	—	.065	.065	.065	—
Pentachlorophenol (PCP)	Chronic	(d)	—	(d)	(d)	(d)	—
	Acute	(d)	—	(d)	(d)	(d)	—
	Human Health — Fish	82	—	82	—	82	—
	Human Health — F & W	—	—	—	—	—	.28
Picloram	MCL	—	—	—	—	—	500
Polychlorinated Biphenyls (PCBs)	Chronic	.014	—	.014	1	.014	—
	Acute	2	—	2	2	2	—
	Human Health — Fish	.0004	—	.0004	—	.0004	—
	Human Health — F & W	—	—	—	—	—	.0017
Polynuclear Aromatic Hydrocarbons (PAHs)**	Chronic	.03	—	.03	3	.03	—
	Acute	30	—	30	30	30	—
	Human Health — Fish	.3	—	.3	—	.3	—
	Human Health — F& W	—	—	—	—	—	.044
Phenols	Chronic	50	—	50	50	50	—
	Acute	1000	—	2500	2500	1000	—
	Human Health + — Fish	300	—	300	—	300	—
	Human Health + — F & W	—	—	—	—	—	21*
Selenium (VI)	Chronic	10	—	125	125	70	—
	Acute	15	—	175	175	100	—
	Human Health + — F & W	—	—	—	—	—	170

Parameter		Use Designations					C
		B(CW1)	B(CW2)	B(WW)	B(LR)	B(LW)	
Silver	Chronic	N/A	—	N/A	N/A	N/A	—
	Acute	30	—	100	100	4	—
	MCL	—	—	—	—	—	50
2,4,5-TP (Silvex)	MCL	—	—	—	—	—	10
Simazine	MCL	—	—	—	—	—	4
Styrene	MCL	—	—	—	—	—	100
Tetrachlorethylene	Human Health — F & W	—	—	—	—	—	8
Thallium	Human Health + — F & W	—	—	—	—	—	1.7
Toluene	Chronic	50	—	50	150	50	—
	Acute	2500	—	2500	7500	2500	—
	Human Health + — Fish	300*	—	300*	—	300*	—
	Human Health + — F & W	—	—	—	—	—	6800
Total Residual Chlorine (TRC)	Chronic	10	—	20	25	10	—
	Acute	35	—	35	40	20	—
Toxaphene	Chronic	.037	—	.037	.037	.037	—
	Acute	.73	—	.73	.73	.73	—
	Human Health — Fish	.0075	—	.0075	—	.0075	—
	Human Health — F & W	—	—	—	—	—	.0073
1,2,4-Trichlorobenzene	MCL	—	—	—	—	—	70
1,1,1-Trichlorethane	MCL	—	—	—	—	—	200
	Human Health + — Fish	173*	—	173*	—	173*	—
1,1,2-Trichloroethane	Human Health — F & W	—	—	—	—	—	6
Trichloroethylene (TCE)	Chronic	80	—	80	80	80	—
	Acute	4000	—	4000	4000	4000	—
	Human Health — Fish	807	—	807	—	807	—
	Human Health — F & W	—	—	—	—	—	27
Trihalomethanes (total) <sup>(c)</sup>	MCL	—	—	—	—	—	80
Vinyl Chloride	Human Health — F & W	—	—	—	—	—	20
	Human Health — Fish	5250	—	5250	—	5250	—
Xylenes (Total)	MCL	—	—	—	—	—	10*

Parameter		Use Designations					C
		B(CW1)	B(CW2)	B(WW)	B(LR)	B(LW)	
Zinc	Chronic	200	—	450	2000	100	—
	Acute	220	—	500	2200	110	—
	Human Health + — Fish	5000	—	5000	—	5000	—
	Human Health + — F & W	—	—	—	—	—	9100

\* units expressed as milligrams/liter

\*\* to include the sum of known and suspected carcinogenic PAHs

† expressed as nanograms/liter

+ represents the noncarcinogenic human health parameters

++ The concentrations of 4,4-DDT or its metabolites; 4,4-DDE and 4,4-DDD, individually shall not exceed the human health criteria.

(a) units expressed as million fibers/liter (longer than 10 micrometers)

(b) includes alpha-endosulfan, beta-endosulfan, and endosulfan sulfate in combination or as individually measured

(c) The sum of the four trihalomethanes (bromoform [tribromomethane], chlorodibromomethane, chloroform [trichloromethane], and dichlorobromomethane) may not exceed the MCL.

(d) Class B numerical criteria are for pentachlorophenol a function of pH using the equation: Criterion ( $\mu\text{g/l}$ ) =  $e^{[1.005(\text{pH}) - x]}$ , where  $e = 2.71828$  and  $x$  varies according to the following table:

	B(CW1)	B(CW2)	B(WW)	B(LR)	B(LW)
Acute	3.869	—	4.869	4.869	4.869
Chronic	4.134	—	5.134	5.134	5.134

**TABLE 2. Criteria for Dissolved Oxygen***(all values expressed in milligrams per liter)*

	B(CW1)	B(CW2)	B(WW)	B(LR)	B(LW)
Minimum value for at least 16 hours of every 24-hour period	7.0	7.0	5.0	5.0	5.0*
Minimum value at any time during every 24-hour period	5.0	5.0	5.0	4.0	5.0*

*\*applies only to the upper layer of stratification in lakes***TABLE 3a. Acute Criterion for Ammonia in Iowa Streams**

Acute Criterion, mg/l as N (or Criterion Maximum Concentration, CMC)		
pH	Class B(WW), B(LR) & B(LW)	Class B(CW1) & B(CW2)
6.5	48.8	32.6
6.6	46.8	31.3
6.7	44.6	29.8
6.8	42.0	28.0
6.9	39.1	26.1
7.0	36.1	24.1
7.1	32.8	21.9
7.2	29.5	19.7
7.3	26.2	17.5
7.4	23.0	15.3
7.5	19.9	13.3
7.6	17.0	11.4
7.7	14.4	9.64
7.8	12.1	8.11
7.9	10.1	6.77
8.0	8.40	5.62
8.1	6.95	4.64
8.2	5.72	3.83
8.3	4.71	3.15
8.4	3.88	2.59
8.5	3.20	2.14
8.6	2.65	1.77
8.7	2.20	1.47
8.8	1.84	1.23
8.9	1.56	1.04
9.0	1.32	0.885

**TABLE 3b. Chronic Criterion for Ammonia in Iowa Streams - Early Life Stages Present**

Chronic Criterion - Early Life Stages Present, mg/l as N (or Criterion Continuous Concentration, CCC)										
pH	Temperature, °C									
	0	14	16	18	20	22	24	26	28	30
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.8	2.8	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

**TABLE 3c. Chronic Criterion for Ammonia in Iowa Streams - Early Life Stages Absent**

Chronic Criterion - Early Life Stages Absent, mg/l as N (or Criterion Continuous Concentration, CCC)										
pH	Temperature, °C									
	0-7	8	9	10	11	12	13	14	15*	16*
6.5	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89	6.46	6.06
6.6	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79	6.36	5.97
6.7	10.5	9.81	9.20	8.62	8.08	7.58	7.11	6.66	6.25	5.86
6.8	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51	6.10	5.72
6.9	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.93	5.56
7.0	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.73	5.37
7.1	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.49	5.15
7.2	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	5.22	4.90
7.3	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25	4.92	4.61
7.4	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89	4.59	4.30
7.5	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	4.23	3.97
7.6	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.85	3.61
7.7	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.47	3.25
7.8	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89
7.9	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.71	2.54
8.0	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52	2.36	2.21
8.1	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17	2.03	1.91
8.2	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85	1.74	1.63
8.3	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58	1.48	1.39
8.4	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25	1.17
8.5	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13	1.06	0.99
8.6	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951	0.892	0.836
8.7	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805	0.754	0.707
8.8	1.07	1.01	0.944	0.885	0.829	0.778	0.729	0.684	0.641	0.601
8.9	0.917	0.860	0.806	0.756	0.709	0.664	0.623	0.584	0.548	0.513
9.0	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503	0.471	0.442

\*At 15°C and above, the criterion for fish early life stage (ELS) absent is the same as the criterion for fish ELS present.

**61.3(4)** *Class “C” waters.* Rescinded IAB 4/18/90, effective 5/23/90.

**61.3(5)** *Surface water classification.* The department hereby incorporates by reference “Surface Water Classification,” effective December 15, 2004. This document may be obtained from the Records Center, Iowa Department of Natural Resources, Wallace State Office Building, 900 East Grand Avenue, Des Moines, Iowa 50319-0034, or on the department’s Web site at <http://www.state.ia.us/dnr/organiza/epd/wtresrce/wquality/index.htm>.

**61.3(6)** *Cold water use designation assessment protocol.* The department hereby incorporates by reference “Cold Water Use Designation Assessment Protocol,” effective December 15, 2004. This document may be obtained on the department’s Web site at <http://www.state.ia.us/epd/wtresrce/wquality/index.htm>.

This rule is intended to implement Iowa Code chapter 455B, division I, and division III, part 1.

**567—61.4 to 61.9** Reserved.

#### VOLUNTEER MONITORING DATA REQUIREMENTS

**567—61.10(455B) Purpose.** The department uses water quality monitoring data for a number of purposes, including determining compliance with effluent limits for operation permits issued under 567—Chapter 64. The department also uses water quality monitoring data to determine the relative health of a water body by comparing monitoring data to the appropriate water quality standards established in 567—Chapter 61, a process known as water body assessments. Water body assessments are performed to prepare the biennial water quality report required under Section 305(b) of the Act and the list of impaired waters under Section 303(d) of the Act.

Iowa Code sections 455B.193 to 455B.195 require that credible data, as defined in Iowa Code section 455B.171, be used for the purpose of preparing Section 303(d) lists and other water quality program functions. Data provided by a volunteer are not considered credible data unless provided by a qualified volunteer. The purpose of this chapter is to establish minimum requirements for data produced by volunteers to meet the credible data and qualified volunteer requirements.

**567—61.11(455B) Monitoring plan required.** Volunteer water quality monitoring data submitted to the department must have been produced in accordance with a department-approved volunteer water quality monitoring plan before the data may be used for any of the purposes listed in Iowa Code section 455B.194. Approval of a plan will establish qualified volunteer status for the personnel identified in the plan for those monitoring activities covered under the plan.

**61.11(1) Submittal of the plan.** Prior to initiation of volunteer water quality monitoring activities intended to produce credible data, a water quality monitoring plan must be submitted to the department for review and approval. The plan must be submitted to the Volunteer Monitoring Coordinator, Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319, a minimum of 90 days before planned initiation of volunteer monitoring activities. A letter transmitting the plan must specifically request formal review and approval of the plan and identify a contact person. Volunteer monitors are encouraged to communicate with the department and to attend volunteer monitoring training sessions prior to formal submittal of a plan.

**61.11(2) Content of the plan.** A volunteer monitoring plan must contain, at a minimum, the following to be considered an acceptable volunteer monitoring plan:

- a. A statement of the intent of the monitoring effort.
- b. The name(s) of the person or persons that will be involved in data collection or analysis, the specific responsibilities of each person or group of people, and the general qualifications of the volunteers to carry out those responsibilities. For groups, such as educational institutions, it will be acceptable to identify the persons involved by general description (e.g., tenth grade biology class) with the exception of persons in responsible charge.

c. The name(s) of the person or persons that will oversee the monitoring plan, ensure that quality assurance and control objectives are being met, and certify the data. The person or persons in responsible charge must have training commensurate with the level of expertise to ensure that credible data is being generated.

d. The duration of the volunteer monitoring effort. In general, the department will not approve plans of greater than three years' duration unless a longer duration is justified.

e. Location and frequency of sample collection.

f. Methods of data collection and analysis.

g. Record keeping and data reporting procedures.

**61.11(3) *Department review of the plan.*** The department will review monitoring plans and normally approve or disapprove the plan within 90 days of receipt. The department will work with the contact person identified in the plan to make any necessary changes prior to taking formal action. The department will use guidelines contained in the publications EPA Requirements for Quality Assurance Project Plans (EPA QA/R-5, 2001) and Volunteer Monitor's Guide to Quality Assurance Project Plans (1966, EPA 841-B-96-003) or equivalent updates to determine if the plans provide adequate quality assurance and quality control measures. Approval or disapproval of the plan will be in the form of a letter and approval may include conditions or limitations.

**61.11(4) *Changes in monitoring plans.*** The department must approve any changes to an approved monitoring plan. Data collected under a modified plan will not be considered credible data until such time as the department has approved the modifications. Modifications to an approved plan should be submitted at the earliest possible time to avoid interruptions in data collection and to ensure continuity of data.

**61.11(5) *Appeal of disapproval.*** If a monitoring plan submitted for approval is disapproved, the decision may be appealed by filing an appeal with the director within 30 days of disapproval. The form of the notice of appeal and appeal procedures are governed by 567—Chapter 7.

**567—61.12(455B) *Use of volunteer monitoring data.*** Data produced under an approved water quality monitoring plan will be considered credible data for the purposes listed in Iowa Code section 455B.194 if the following conditions are met.

**61.12(1) *Data submittal.*** A qualified volunteer monitor or qualified volunteer monitoring group must specifically request that data produced under an approved volunteer monitoring plan be considered credible data. A letter identifying the specific data must be submitted along with a certification from the volunteer or the person in responsible charge for volunteer groups that the data, to the best of the volunteer's or responsible person's knowledge, was produced in accordance with the approved volunteer monitoring plan. The department shall provide a standard format on the IOWATER Web site for submittal of qualified volunteer data and related information. The department encourages volunteers to enter monitoring data on the IOWATER volunteer monitoring database maintained by the department, but doing so does not constitute submittal to or acceptance of the data by the department for uses requiring credible data. Volunteer data shall be labeled as such in any departmental reports, Web sites, or databases.

**61.12(2) *Department review of submitted data.*** The department must review and approve the submitted data. The person submitting the data will be informed of the department's decision either to accept or reject the data. The department will attempt to resolve any apparent inconsistencies or questionable values in the submitted data prior to making a final decision.

**567—61.13(455B) Department audits of volunteer monitoring activities.** The department shall conduct field audits of a statistically valid and representative sample of volunteer data collection and analysis procedures to ensure compliance with an approved plan and may conduct confirmatory monitoring tests. Volunteers shall be informed of any audit results and be provided with an opportunity to address any concerns to the extent possible. The department reserves the right to rescind approval of an approved plan if it finds substantial problems that cannot be addressed in a timely manner to ensure the quality of the data being produced.

These rules are intended to implement Iowa Code chapter 455B, division III, part 1.

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